THE VETERINARY RECORD

A Weekly Journal for the Profession.

EDITED BY WILLIAM HUNTING, F.R.C.V.S.

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EDITORIAL NOTES.

The report of the Tuberculosis case—*i.e.*, merely the evidence on both sides—as published in *The Glasgow Herald*, would just fill four numbers of *The Record*. It required some deliberation to know how best to present this flood of very interesting matter. To print a little at a time was calculated to spoil the effect of the whole, and so we determined to condense it and divide it into two portions,—evidence for the prosecution, and evidence for the defence. In condensing it the difficulty was to preserve an impartial proportion, so that neither side could complain of any special points being diminished in quality even if they were in quantity. We trust our readers will not think the space occupied is wasted. Our view of its importance is shown by the addition of four pages to this number, and to a consequent addition of four pages to next week's issue.

The space occupied by the Glasgow report has obliged us to hold over a number of articles and cases which we hope to publish next week, but it is just possible that they may even then be crowded out. We trust our contributors will not be impatient.

Dr. Fleming's action against Mr. Dollar, junr., for alleged libel contained in a letter on "Operations for Roaring," written to *The Sporting Life* is going on. Some technical point in the proceedings was argued on Thursday before the Lord Chief Justice and Mr. Justice Hawkins in the Court of Appeal. It seems a pity that two members of the profession should have to fight out their opinions or expressions in a Law Court.

The "Royal" Show at Windsor, which opens on Saturday, June 22nd, promises to be a memorable one. The first show of the Society was held at Oxford in 1839, when there were 100 head of live stock and twenty exhibitors of implements. At Windsor there will be nearly 4,000 head of live stock and nearly 600 exhibitors of implements. The first day, admission is to the implement department only.

Monday, June 24th, is a five-shilling day, and the judging of live stock commences at 9 a.m.

Tuesday is a half-crown day, and a General Meeting of Members of the Society will be held. A parade of horses takes place at 3 p.m., and the Shoeing Competition begins with draught horses.

Wednesday—half-crown day—parade of cattle at 11 a.m., parade of horses at 3 p.m., shoeing competition (draught horses) resumed.

Thursday—half-crown day—parades of cattle and horses. Shoeing Competition (harness horses) begins at 10 a.m.

Friday and Saturday—one shilling days—parades of cattle and horses, shoeing competition resumed.

Demonstrations every day of butter-making and bee-driving.

The band of the Grenadier Guards every day.

Admission to the State Apartments at Windsor Castle and to the Royal Farms may be obtained every day.

CLINICAL NOTES.

TUBERCULOSIS IN A DOG.

By AUSTIN PETERS, M.R.C.V.S.*

The following case of tuberculosis in a dog illustrates the transmissibility of this disease from mankind to the lower animals.

The animal was a young white poodle dog. I was first called to see him on December 29th last, and was told that he had been sick several days, and the owner's family thought he had taken cold. When I first saw him his nose was cool and moist, the respiration rapid and jerky. somewhat abdominal. The history then was that at times his nose was hot and dry, and that his appetite was capricious, sometimes good, and at other times poor.

I though it was a case of bronchitis, and prescribed a simple cough syrup, telling the people of the house to let me know if he was not better in a few days.

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* Mr. Peters of Boston, Mass., graduated in London and obtained his diploma in 1885.

January 2nd I learned more of the history of the case, which aided me in reaching a hasty, but, as was afterwards proved, a correct diagnosis.

Mrs. H., the wife of the owner of the house where the dog was kept, died of consumption November 8th last, after a long and lingering illness of over a year. The dog, then a puppy, had been given to the children of the family the previous July, and I was told that he had acquired the disgusting habit of eating the sputa coughed up by Mrs. H. from the spittoon whenever he had an opportunity, although he was continually driven away when he was noticed.

"Is it not possible," I was asked, "that he may have taken consumption from Mrs. H.?" I thought it not only possible, but probable, and as he was the pet of the young children advised his speedy destruction. He was therefore shot that evening and I held an autopsy upon him the following morning.

The post-mortem examination revealed phthisis of both lungs, with a large abscess in the posterior lobe of the left. There was also a little puro-serous fluid in the thoracic cavity.

Scrapings were made from the walls of the abscess, and smeared on cover glasses, and then stained for the bacilli of tuberculosis, which I found in large numbers under the microscope. In places there were clumps of bacilli, ten or twelve in number.

Owing to lack of time, no sections have been cut for examination from either lungs or liver.

I regret to say that I did not open the stomach or intestines, but they showed no outward sign of disease. This appears to be a case of inhalation tuberculosis, rather than one of ingestion, but the bacilli no doubt gained access to the respiratory apparatus as a result of the dog's filthy habits.

We often hear stories of cats and dogs, kept as pets by consumptives, pining away and dying, but we do not often have a case recorded backed up by absolute proofs, where a post-mortem is held on the animal, and the bacilli found as final evidence of the disease.—*American Vet. Review.*

NEW VETERINARY COLLEGE, EDINBURGH.

The annual distribution of prizes to students attending the New Veterinary College, Edinburgh, took place on the 21st May, in the theatre of the above College. Medals and certificates of merit were awarded in the different branches of study, as follows:—

The Principal's £20 prize.—Gold Medal, Mr. T. G. Duggle.

Pathology of the Horse.—Medal, Mr. F. Booth.

Pathology of other Domesticated Animals.—Medal, J. Robertson.

Anatomy.—Medal, J. H. Parker.

Physiology.—Medal, J. H. Parker.

Histology.—Medal, R. J. Bushnell.

Chemistry.—Medals, J. Connochie, A. Todd, and R. Johnstone.

Practical Chemistry.—Medals, C. Haywood, and A. G. Todd.

Elementary Anatomy.—Medal, R. Johnstone.

Botany.—Medal, J. Connochie.

Curators of Museum.—Medals, E. Franklin, E. F. de Jong.

For Practice.—Medals, W. Stothert, E. K. Burton.

Agricultural. Veterinary Hygiene (Principal's class.)—Medal, J. J. Jeffray. Professor W. O. William's class.—Medal, D. J. Gilchrist.

VETERINARY MEDICAL SOCIETIES.

THE NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

The quarterly meeting of this Association was held in the County Hotel, Newcastle-on-Tyne, on Friday, May 31st. The president, Mr. J. Gofton, in the chair. There were present Messrs. J. W. T. Moore, J. B. Nisbet, D. Dudgeon, A. Hunter, W. A. Hancock, W. Wheatley, W. Awde, H. Hunter, Wm. Hunter, J. E. Peele, C. Stephenson, G. Elphick, J. Aitken, A. Duvall, J. B. Askew, and the Secretary.

The minutes of the last meeting were confirmed.

The Secretary reported that he had communicated with Mr. Kidd, the Secretary of the Royal Counties Association, with regard to the meetings falling on the same day. It was agreed that this Association alter the date of the November meeting, provided the Royal Counties change the date of the February meeting.

Mr. Wm. Hunter, Newcastle-on-Tyne, next brought up for discussion the recent cases of pleuro-pneumonia which had occurred at High Heaton.

Mr. President and Gentlemen,

I wish to bring before you this afternoon some interesting and important particulars regarding the recent outbreak of pleuro-pneumonia in this borough, which you would see recorded in the daily press of this city on Monday last. I bring it before you solely on a point of veterinary jurisprudence which I hope you will assist us to clear up and set at rest.

We are frequently called upon as veterinary surgeons to give evidence in courts of justice as to the nature of a disease, and how long a disease may have existed in the animal prior to death. It is very damaging to the profession for one veterinary surgeon to enter the witness-box and swear a certain disease has existed only a week, or at the utmost ten days, and another professional brother to follow him and positively affirm that the disease has existed for many months. Veterinary jurisprudence is not, as far as I am aware, taught in any methodical or systematic manner at any of our veterinary colleges, and a young man commencing his profession has to gain this knowledge by years of experience.

I was called to visit a light roan-coloured cow belonging Mr. Oliver, of High Heaton Farm, on May 4th. I found her suffering from acute pneumonia of the right lung; I blistered her chest with

mustard, and gave febrifuges and antiseptics, under which treatment she slowly but gradually improved. This was the second cow I had treated at the same place for lung affection.

On Friday last Mr. Stephenson and other three veterinary surgeons saw her; Mr. Stephenson said he could not say that she was affected with pleuro-pneumonia; she was slaughtered on Monday, and we made a post-mortem examination of her lungs on Tuesday, when we found the greater portion of the right lung anteriorly consolidated from pleuro-pneumonia contagiosa, and adhering to the ribs. I asked Mr. Stephenson his opinion of the affected lung; he said it was an old encysted portion of many months standing. Now, gentlemen, this is the point upon which Mr. Stephenson and I are at issue; in my opinion the lung has not been affected more than a month at most.

I wish to ask the opinion of this meeting upon the diseased lung; I am extremely sorry that I have not the lung to place before you, but I can assure you, gentlemen, it is no fault of mine that I am unable to do so; I urged Inspector Hedley on Tuesday last to let me have a portion of the lung if he would not let me have the whole, but he was inexorable, I could not have any as Mr. Stephenson had left word with him that the lungs had not to be interfered with by anyone until Dr. Armstrong, Medical Officer of Health, had seen them. I described to him for what purpose I required it—to place it before our meeting to-day—but it was no use: Mr. Hedley would have his way. He promised however to retain for me a portion should Dr. Armstrong agree. I had to leave before the doctor arrived, but have not been able to obtain what I wanted for reasons best known to themselves. However, I shall attempt to describe the affected portion of lung and its surroundings as well as I can. It was a large portion extending from the centre of the lobe to the pleura externally, it was about 8 inches from above downwards, and 10 or 12 inches from before backwards. The dead portion of lung was beginning to slough from the living, but was quite solid to the touch and when cut into with the knife still presented the marbled appearance pathognomonic of pleuro-pneumonia. Portions or small pieces in the centre were breaking up and becoming liquefied. Now what I wish to know is—if this lung had been encysted for many months would it have been solid and characteristically marbled? There was no sloughing where the lung was attached to the pleura costalis, the lymph peeled off the lung by being dragged out of the thorax, and presented a red papillated appearance. I also wish to ask you, gentlemen, if this large portion of lung situated where it was would ever have become thoroughly encysted? I have always understood that encysted portions of diseased lung were situated within the parenchyma or substance of the lung and did not extend to the pleura.

This portion of lung in my opinion was simply undergoing the process which nature usually has of absorbing the dead piece, but the process had not long commenced, for we know that shortly after sloughing commences between the living and the dead portion of lung that granulations or processes shoot out from the living lung into the substance of the dead part breaking it up and assisting to liquefy it, the fluid portion becoming absorbed, the granulation tissue filling up the cavity, and a small portion of caseous degenerated tissue remains behind.

Gentlemen, I trust you will express your opinions, and assist us to arrive at some definite conclusion upon this important matter.

In the discussion which followed,

Mr. D. Dudgeon thought the problem a difficult one, and one which could only be solved by those who had examined the lungs.

Mr. Hancock asked Mr. Hunter to give the history of the outbreak.

Mr. Wm. Hunter said on the 24th April he was called to a cow suffering from pneumonia; she gradually got weaker, and was slaughtered on the 30th. This cow had been in the owner's possession since last October. He had not an opportunity of making a post-mortem. The next was the case of the 4th May alluded to in his remarks. Two cows were disposed of previous to the one on the 24th April, neither of which did he examine post-mortem.

Mr. J. E. Peele thought from Mr. Hunter's description the case was one of old standing.

Mr. Elphick said that last Friday (May 24th) he went with Mr. Hunter to examine the cows. They examined three cows and came to the conclusion that they were affected with pleuro-pneumonia. On their way home they called on Mr. Stephenson but he refused to take notice from them, preferring that the notice should come through the proper channel. When he saw the lungs they were considerably mutilated, and in an imperfect state, but the idea he had formed was that it was a case of considerable standing. He had never in his experience seen so many different stages of pleuro-pneumonia as were exhibited in this outbreak.

Mr. Stephenson was surprised at Mr. Hunter, as when he came to the meeting he had no idea this question was going to be brought forward, and from what he saw when he was first called to the farm he found it to be an ordinary outbreak of pleuro-pneumonia, and it appeared to have been there for a long time. There were four cows ill, three being well marked cases; the other, the light roan cow referred to by Mr. Hunter: he certainly could not in the living animal detect real pleuro-pneumonia, but at the post-mortem he found it to be an old encysted case, and there was only one piece of the lung affected, and so liquefied that the cyst burst. The owner informed him that three cows had been disposed of, one on the 10th April, one on the 17th, and one on the 30th. When he first reported the outbreak he asked the Committee for an order to slaughter the whole of the thirty-one cows and six calves, but at that time they would only allow him to slaughter one. Since that however the whole of the animals had been slaughtered, and post-mortem he found twelve cases of pleuro-pneumonia four of these being encysted cases. The reason Mr. Hunter was not able to get any of the diseased lungs was because the Medical Officer of Health and several medical men wanted to see the lungs intact, but if

Mr. Hunter would send to the School of Medicine he could have as much pleuro-pneumonia lung as he wanted.

Mr. Wm. Hunter said what he wished to know was whether large portions of the lung became encysted between the ribs and the deeper seated portions?

Mr. Moore and Mr. D. Dudgeon said they had found cysts in all parts of the lung in cases of pleuro-pneumonia.

Mr. Hancock said the discussion had been a very interesting one, and pointed out the desirability of veterinary surgeons making post-mortem examinations of all cases which die under their care.

Mr. Nisbet said it was sometimes very difficult to trace the origin of the disease, and instanced a recent outbreak which came under his notice, when no fresh animal had been on the farm for five years. He agreed that cysts were found in any part of the lungs.

Mr. Duvall promised to show at the next meeting some microscopic specimens of the diseased lungs.

The President next exhibited a number of concretions of various sizes from the bowels of a horse, the attendant describing them as "a shower of paving stones." The horse recovered but he has an enormous bulging out at the right side, just over the liver which is quite hard; and is evidently suffering from a diseased liver. He then related an interesting case of rupture of the stomach in a foal, in which quite a barrow load of ingesta was found in the abdominal cavity.

A discussion then took place on Professor Williams' remarks on Tetanus made at the last meeting. Mr. Wm. Hunter saying he quite thought the disease was due to a micro-organism, and had treated a case successfully with salicylate of soda and quinine.

Mr. Awde alluded to the fact of the meetings always being held in Newcastle-on-Tyne, saying how inconvenient the trains ran for members living in South Durham, and that it was proposed to form an Association for South Durham and North Yorkshire.

The Secretary drew Mr. Awde's attention to Rule VII. which said "in Newcastle or district, as selected by the Association," and further that the members living in South Durham had never expressed any desire, or given the Association an invitation to visit any of the southern towns. He had no doubt that the Association would go to other towns if by that means they could get increased membership, and desired Mr. Awde to convey to the promoters of the new society these facts.

Several other matters of interest brought forward by Mr. Awde were held over until next meeting.

Votes of thanks to Mr. Wm. Hunter and the President brought the meeting to a conclusion.

G. R. Dudgeon, *Hon. Sec.*

The Import of Eggs into England.

The *Republique Francaise* publishes a return from various countries of Europe. The total last year is given as 1,034 millions, of which about 333 millions came from Russia, 45,000 tons weight from Austro-Hungary, and 27,230 tons weight from Germany.

CENTRAL VETERINARY MEDICAL SOCIETY.

An ordinary General Meeting was held at the First Avenue Hotel, Holborn, on Thursday, 6th June. Alfred Broad, Esq., the President, in the chair, and there were present:—Professor Axe, Messrs. Banham, Elworthy, Gostling, Herron, Hunting, Hurndall, T. E. W. Lewis, Oatway, Rogers, Roots, Rowe, Samson, Simpson, Fredk. Smith, Villar, Wheatley, Willis, Woodger, Wragg, and Wright.

The minutes of the preceding meeting were read and confirmed. Letters of apology for non-attendance were received from Professor Walley and Messrs. Prudames and Slocock.

Mr. George Reddish, M.R.C.V.S., of 103 Stockwell Road, London, was unanimously elected a Fellow of the Society.

The President announced that a Special Meeting of the Society would be held on 4th July to take into consideration a report of the Council as to certain Fellows whose subscriptions were much in arrear.

Mr. Heron introduced a post-mortem specimen consisting of a dental growth from a horse's ear.

Professor Smith then addressed the meeting on "Our present knowledge of Navicular Disease."

The President, Professor Axe, Messrs. Rowe, and Hunting took part in the discussion. At its conclusion Mr. Samson proposed and Mr. Rowe seconded a vote of thanks to Professor Smith for his address, which was unanimously carried, and the proceedings closed.

EXTRACTS.

DISEASED MEAT (TUBERCULOSIS) IN GLASGOW.

Condensed from Glasgow Herald.

The cases against the owners of two carcases alleged to be tuberculous and unfit for human food came before Sheriff Berry in the Justiciary Court Hall yesterday morning. The counsel retained in the cases are:—For the petitioners—Messrs. J. Comrie Thompson and Alexander Ure. For the respondent Moore—Mr. Jameson. For the respondent Couper—M. D. M'Kechnie.

Sheriff Berry.—The point you have to investigate here is put in an interlocutor which I pronounced on 24th May, the point being in each case whether, at the date when the carcases referred to in the petition were seized by the sanitary inspector, the same were unfit for human food. That is the issue to be tried.

EVIDENCE FOR THE LOCAL AUTHORITY.

Peter Fyfe,

Examined by Mr. Comrie Thompson, said:—In my capacity of sanitary inspector, and acting under the 26th section of the Public Health Act, I on Thursday, 9th May, proceeded to Moore Street Slaughter-house, and examined the carcase of a

bullock and also the carcass of a cow. The first was said to belong to Hugh Couper, and the cow to Charles Moore. I was made aware that the same carcasses had on the previous day been examined by Dr. Russell, the health officer, and by Professor M'Call. I accordingly asked the medical officer to grant me a certificate on the carcasses, and he did so. (Certificate produced.) The certificate attests that in Dr. Russell's opinion both animals were affected with tuberculosis and unfit for the food of man. I first examined the carcass of the bullock.

On the left side of the bullock the carcass was pretty well defined, very red over the lining of the animal, for about six inches by eight inches, being rosy red, with nodules. This was on the left side of the carcass internally. There were signs of inflammation in the lining near the pleura. The right side showed symptoms of a similar character, but much slighter. That was on the corresponding part of the animal, and also in the lining. In the lungs themselves I found two or three greyish nodules. I cut into one and found it to be cartilaginous—rather gristly. I may say that afterwards I saw nodules cut out of the lungs of a different character. I looked at the liver, but saw no appearance of disease on it. From my own examination and the medical officer's certificate I informed Mr. Hamilton, the superintendent of the market, that I would seize the carcass, and that he was to detain it until he heard from me further. I next examined the cow. I saw on the left side, in identically the same position as in the bullock, the same bright red, rosy appearance, showing nodular inflammation. Both lungs of the cow appeared to be very badly affected with cheesy nodules, well defined all through, and very numerous. Both these carcasses were seized by me as unfit for human food, in terms of the Public Health Act. I then gave information to the Procurator-Fiscal, and asked a warrant to have them destroyed. On the same afternoon I sent two inspectors to call upon Mr. Coupar and Mr. Moore to see if they would sign a written consent to the destruction of the animals, but they refused. On Saturday, 11th, as instructed by the Procurator-Fiscal, I caused the carcasses to be removed to the freezing chambers at Yorkhill Slaughter-house. They were put into the freezing chamber in the same condition as when they were taken out of the place where they were examined, and were directed to be kept there pending the trial of the question.

Cross-examined by Mr. JAMESON.—I have not made an inspection of this kind officially before. I never seized a carcass of this kind before.

Apart from the appearances you have described, was the flesh of the cow quite sound?—It appeared to be, so far as I could see. It appeared to have stiffened properly after death.

And was quite hard, good, sound, red flesh?—It appeared so.

This was the first time on which you seized the carcass of an animal officially?—Yes.

So this is a new thing altogether in Glasgow, the seizure of the carcasses by the Inspector under the Public Health Act?—That is so.

JOHN M'LELLAND.

Inspector of Police, examined by Mr. URE, said:—Moore Street Slaughter-house is in my district, and I supervise the inspection or passing of meat. I have been engaged in that duty between 16 and 17 years. On Wednesday, 8th May, I declined to pass the two carcases spoken to by Mr. Fyfe. I did so because I was instructed by Chief-Constable Boyd to pass nothing that I could see a speck of disease upon. The tip of the lung of the cow was affected with some tubercles, and a small part of the left side. The bullock had an inflammatory rash upon the left side. I asked Professor M'Call, Dr. Russell, and Dr. Young to examine the carcasses.

Cross-examined by Mr. JAMESON.—The flesh of this cow except to the extent I have described was quite healthy. It was very firm, and cut well. As far as my judgment goes, the flesh of that cow except the lungs and the other membrane was perfectly healthy and fit for human food. Our practice was when the intestines only were affected to condemn the intestines and pass the carcasses. When the carcasses were generally affected with tuberculosis I refused to pass them. Animals which were only locally affected have always been regarded as fit for human food, if the carcass was otherwise healthy. The others have always been condemned.

How many animals have you been in the custom of examining per week?—About a thousand.

And of these what is the average number affected with tuberculosis, more or less?—There may be four or five in the thousand. And most of these are cows.

Of these four or five how many would be condemned as unfit for human food?—Generally about the half, and the other half would be passed.

Was that because half of them were affected generally with tuberculosis and the other only locally?—Yes.

Cross-examination continued.—I have no difficulty in detecting tuberculosis. On 30th April last I detained two sides of beef sent in from the country, which Dr. Russell and Professor M'Call passed. At the same time I refused to pass two other sides of country beef. In both cases the persons to whom the sides were consigned consented to give them up, but afterwards Professor M'Call and Dr. Russell were sent for to examine them, and they passed them. (Laughter.)

Cross-examined by Mr. M'KECHNIE.—I would not have condemned the bullock but for the special instructions of 26th April. It was a good bullock—very little wrong with it. In all my experience I never heard of a two-year-old bullock being condemned for tuberculosis.

CONSTABLE ROBERT BERESFORD,

Examined by Mr. COMRIE THOMSON, said,—I have been meat inspector in Moore Street, under the last witness, for 14 years. Until about a month ago, where carcasses were slightly affected with tuberculosis, the affected part was cut off and the part apparently unaffected passed. Since that time I have received instructions not to pass any animal which showed

symptoms of any disease until it was submitted to Dr. Russell, Professor M'Call, and Dr. Young.

I believe the previous practice had the sanction and approval of Dr. Young?—Yes. In accordance with these later instructions I detained for examination the carcasses of the bullock and the cow on May 8. The bottom part of the cow's lungs was affected with tuberculosis, but the upper part was quite clear. The disease was at a very mild stage, in my opinion. There were nodules in the left chest. In the bullock the disease was at the preliminary stage. There were three places in which the bullock was affected—the lung, lining, and the skirt. There was inflammation perceptible in each of those places.

Cross-examined by Mr. JAMESON.—Was the flesh of the cow, apart from the lungs, perfectly good?—Yes; hard and firm, and in good condition and fit for human food.

You are acquainted with tuberculosis?—I ought to be.

And you think you could detect tuberculosis probably better than even a scientist?—Well, I have nothing else to do.

Dr. J. B. RUSSELL,

Examined by Mr. COMRIE THOMSON, said.—I have been Medical Officer of Health for the city of Glasgow since 1872. On 8th May I inspected a carcass of a bullock said to belong to Hugh Couper, which was in Moore Street Slaughter-house. I found the pleural surfaces of both sides, but especially the left side, were diseased. The disease in my opinion was tuberculosis. The under surface of the diaphragm presented the most characteristic appearances—that was the pleural surface of the diaphragm. There was also tuberculosis on the costal pleura on the left side, and on the right side to less degree. The disease was acute. The surface of the left lung was covered with inflammatory lymph. It had apparently been adherent to the walls of the chest. That was the result of the inflammatory action of pleurisy. That pleurisy in turn had been caused most probably by the irritation of tubercular virus. There is a disease known as tubercular pleurisy, and that was what was the matter with this left lung. In regard to the costal pleura, or lining of the ribs, and the pleural surfaces of the diaphragm, I would describe the disease as tuberculosis. There was some congestion of the substance of the left lung, and on the posterior border of it were nodules perceptible to the touch. On 15th May I removed a portion of the lung, taking those nodules, and delivered it to Dr. Coates for microscopic examination. In my judgment the carcass was unfit for human food. At the same time I inspected the carcass of a cow said to belong to Charles Moore. It also was to some extent in a morbid condition. The walls of the chest on both sides presented vegetations having the character of tuberculosis of a chronic type. By vegetations I mean the fleshy projections from the natural tissue of the pleura caused by the irritative action of the tubercular bacillus. The tubercular bacillus was discovered by Koch in 1881, and is only visible under a powerful microscope. The existence of its spores, when disassociated from the parent soil, can only be discovered by their effects. The posterior portion of both lungs was packed with tubercular deposit, which was in the softening stage. The first appearance is a greyish deposit in the normal tissue. Then it caseates—becomes cheesy, sometimes becomes chalky, and sometimes passes into the condition of pus. In this animal the deposit was assuming the purulent form of degeneration. It had reached a particularly obnoxious stage.

What percentage of the deaths registered in this city is contributed by these tubercular diseases? 17 to 18 per cent. That does not comprise all the mischief that is done to the human race by tubercle. From the habit of the bacillus to light upon certain organs, it may produce very serious symptoms which cannot be traced to their origination in this deposit of tubercle unless in the case of death and a *post-mortem* examination. There is no doubt that various forms of nervous diseases, even amounting to insanity, arise from the tubercular process in the nervous system. And similarly with other diseases, the symptoms of which are derangement of function in various organs.

Cerebral diseases?—Yes.

Is it also the case that such things as tumours of the bones and joints are attributed to tubercles?—A very large part of surgical work consists in the examination of tubercular deposits and the resulting injuries to accessible tissues in joints and glands. It has also been ascertained that certain forms of distressing skin affections are tubercular in their origin. I think the consequences to human beings from any possible propagation of tubercular disease are so great that no reasonable risk ought to be run of extending its propagation. The disease is hereditary, and is communicable.

Sheriff BERRY.—How do you mean it is communicable?—In the case of phthisis by expectoration. Drying, it spreads as dust.

By Mr. THOMPSON.—The breath?—That is not so dangerous as the general distribution of expectoration and its drying. and the spores, which one may say are immortal, being spread abroad. The discovery of the bacillus in 1881 marked a new era in connection with this question, and since then discussions on the subject now before the Court have been going on constantly. It is universally admitted by experts that this minute organism called the bacillus tuberculosis is the cause of tuberculosis. It has a distinct appearance of its own, and is quite as distinct as are the visible vegetable members of the vegetable kingdom one from the other. It flourishes both in human beings and in the lower animals. The use of the lower animals and their products for human food has given abundant opportunities for the passage of the bacillus across from the lower animals to man. The communication as from man to the lower animals exists, but it is casual, and the opportunity for it might be called incidental altogether.

Examination resumed.—The result of my reading is that the relations which exist between the lower

animals and man leading to the propagation of the tubercular bacillus have been proved to exist by actual experiment. I have made myself familiar with the literature on the subject, and the opinion I have formed as to the use of the flesh of tubercular animals is that it is in all cases attended with such risk that it is wrong to submit human beings to that risk. My opinion is that the flesh of tubercular animals ought to be condemned.

A Departmental Committee of the Privy Council sat last year on pleuro-pneumonia and tuberculosis. Nearly all the leading experts in the kingdom were examined before that Committee. I agree with the report of that committee that "the disease may affect the flesh, and that the ordinary methods of cooking are often insufficient to destroy the bacilli buried in the interior of the limbs;" further, that "although the bacilli may be found but rarely in the flesh, still, the chance of their being present, either there or in the blood, is too probable to ever allow the flesh of a tubercular animal being used for food, under any circumstances, either for man or the lower animals." I concur in that opinion; that last sentence especially is my view.

I suppose that there is so great a probability that the whole of a tubercular animal is affected that it is right that the public should have the benefit of the doubt by being protected?—I think the whole animal ought to be condemned if there are only visible local signs of disease, because behind those visible local signs of disease there is a constitutional infection. Wherever the blood circulates you may have this virus. From moment to moment the blood may be carrying this virus through the whole vascular system, and that even although the naked eye cannot detect it. Quite independent of its physical appearance to the naked eye, in virtue of the probable presence of a subtle virus, the carcass may be capable of injuriously affecting the consumer. As to the mischief being perhaps cured by heat, I take for example the familiar joint. It is very rarely you see a joint in which there is not an underdone portion, where the temperature has not been even sufficient to coagulate the albumen, much less destroy the microbe. There is no known process absolutely certain to deprive the spores of vitality. They are peculiar in all their relations, even to the strongest disinfectants.

Examination resumed.—Experiments have been made on animals, other than human beings, with tubercular material. Involuntary experiments have been made upon man. It is on record that butchers, in the necessary professional manipulation of infected carcasses, have by accidental scratches or cuts inoculated themselves with tubercle, producing what is known as butcher's tubercles, in which the bacillus has been recognised. Another point is that the marrow of the bones might be infected before any distinct local manifestations exhibit themselves. Before there is any visceral affection, or anything visible at all to the naked eye, it has been found the marrow of the bones has been infected, has become the head quarters of the bacillus. As to the statements made by Inspector M'Lelland and his assistant, Inspector Beresford, regarding the sides of beef submitted to me last month, the carcasses were presented for inspection to myself, Mr. M'Call, and Dr. Young. All the external organs and tissues had been removed. There were obvious appearances of some disease or other, which probably was tuberculosis. We got no statement from the officer whatever as to those facts which he stated. For myself, I do not at all present myself as a person who is skilled in the detection of all those minute naked-eye appearances which, to a practical butcher, are perfectly obvious.

Cross-examined by Mr. JAMESON.—Experiments have shown incontestably that in apparently healthy flesh tubercles exist. Of course, to inject the juice, as was done in most of these experiments, was more trying than to eat it. Of course, I cannot tell how these juices or pieces of flesh were selected, or anything more about these experiments than I can read.

Give us a case in which experiment proves that the clean flesh from a tubercular animal—an animal locally affected with tuberculosis—induced tuberculosis in the animal that ate flesh?—I believe there are cases in existence, but I cannot at this moment, even from my notes, quote them.

This is really a subject which is in its infancy, scientifically speaking, is it not?—I can hardly admit that. It is in its infancy in the practical application of it in the case now before us.

Does it not come to this, that there is a very divided state of opinion upon all the science applicable to microbes?—There is no division of opinion on the special question in which we have a particular interest at present.

Mr. JAMESON.—You think not. Well, we will see about that in the course of this trial. (Laughter.) About the communication of this disease, is it not in the lungs of both men and other animals that this tuberculosis generally first makes it appearance?—Yes. Phthisis is the most serious form of the disease.

Is it not very clear that the communication of tuberculosis by the eating of tubercular flesh is almost infinitesimal?—I cannot admit the validity of that reasoning. I wish to point out that however the virus may be introduced, it is characteristic of it that it may go to the lungs.

The tuberculosis that is caused in point of fact by tubercular meat must be, according to the experience of the country, almost infinitesimal?—It is admittedly the most difficult path by which the tubercular bacillus can get access to the body.

So difficult that you cannot say that one per cent. of the deaths from tubercular disease are caused by the bacillus getting entrance through the mouth?—Apart from any explanation of the fact, I am not prepared to say that even one per cent. is caused by it.

Have you any knowledge of this disease beyond what you have got from the Departmental Report and from the Paris Congress?—None whatever.

How do you propose to stop the sides of beasts which have been affected with local tuberculosis coming from America and the country, and being

sold in the dead meat market?—They ought to be inspected certainly.

If the disease was confined to the lungs, pleura, &c., and these were taken out and the sides presented to you at the dead meat market, no person could tell if the animal had been affected?—I do not say that. Probably I could not tell. There might be naked eye appearances in some of the glands.

Apart from that, where sides of meat are brought into Glasgow you have no means of showing whether the animal may or may not have been affected with tuberculosis of the lungs or bowels, unless by external appearances in the flesh?—No.

Have any sides of American meat been condemned by you?—No, not one.

You said the whole of the flesh of this bullock was quite sound to external appearances, except those parts you described?—So far as the naked eye could discern.

Now about the cow. You said you thought it had chronic tuberculosis?—The process had been gradual apparently.

As far as you could see, it had not spread to other parts of the system or lungs?—Not so far as my examination went.

In the human subject people have frequently recovered from tuberculosis?—Such a thing is known.

It is impossible in such a case as that that the whole system could have been diseased?—It never could have been general in any of those persons?—No.

Therefore it is a perfectly possible thing to have local tuberculosis without its becoming general throughout the system?—It is one of the differences between the habits of tuberculosis in human beings and the lower animals; in the human being it is much more liable to be a local affection.

How do you account for this?—It is one of those peculiarities that one sees through a difference of soil.

But is it not apt to be quite local in animals also? Is it not a characteristic of the tubercle bacilli that they often localise themselves in the place where first they find an entry to the animal?—One may say that so far as obvious appearances go the lesions caused by the tubercle are always local.

That is not an answer to my question. Is it not characteristic of the bacillus that it is often localised at the place where it finds an entry to the system?—It does; but not nearly so frequently in animal as in man.

Where it does in animals the flesh of animals would be perfectly good and wholesome to eat?—I cannot admit that.

Why not?—Because of the fact that this local manifestation is only an indication of a process that is going on over the body.

There is no appearance of tuberculosis in the flesh of this cow?—No, so far as I saw.

Is it your opinion there is much more danger to the population from the expectoration of consumptive patients than from tuberculosis in meat?—It is very difficult for me to make a comparison. There is a substantial danger in both.

Would it not tend more to prevent tuberculosis to shut up consumptive patients in asylums than to condemn tubercular meat?—It certainly would be a preventive measure, but I am afraid it would cause more disturbance than this has done. (Laughter.)

Have you ever been able in Glasgow to trace a case of tuberculosis from eating of tubercular meat?—Never.

Is it not the case that at first the disease is really local and confined to a small area?—The obvious lesion certainly.

But the obvious lesion is just the sign of the bacillus being present?—Yes.

That will be present where you have a bacillus living and thriving?—Yes.

Dr. Littlejohn,

Examined by Mr. Comrie Thomson, said.—I have been for 25 years medical officer of health for Edinburgh. During that period I have been medical referee in all disputed cases occurring in slaughter-houses, and have had large experience in all kinds of disease affecting cattle. I have paid special attention to tuberculosis so far as it has occurred in Edinburgh. I examined the two condemned carcasses at Moore Street along with Dr. Russell and Dr. Coates. On the carcass of the bullock there were deposits of tuberculosis; no one could make any mistake about it. I made a section of the flesh, and found it in a most unsatisfactory state. It was deficient in colour and consistence. It was soft, and had I seen that flesh alone, without knowing anything about the carcass, I would have suspected the presence of disease of some kind. There was irridescence, which has again and again attracted my attention in these cases; in my experience it is generally associated with previous illness. On the lungs and windpipe I found an undoubted crop of recent tubercle. It was a diseased animal, and I was of opinion that the flesh should not be allowed to go out for human consumption, or any part of it. I would not have partaken of it myself or given it to my family or others. The second animal was a cow—an aged and undoubtedly a second class animal. In the left chest we found evidence of tubercle, and in the lungs themselves we found abundant evidence of tubercle. As far as mere nourishment was concerned, it was bordering on the unmarketable. I have no hesitation in saying that in this case, as in that of the ox, the whole carcass should be condemned as unfit for human food. I believe that tubercle may be communicated to the human being by ingestion as well as by inhalation. On this subject we are learning every day.

Cross-examined.—Have you ever known a human being recover from general tuberculosis, I mean where the whole system is attacked?—I think not. I think there is nothing impossible to medical science.

You think medical skill can do everything?—Yes, I think so—(laughter)—if you give it a fair chance.

How long do you think this bacillus will live, I mean as a scientific fact? (Laughter.)—I do not know, but I think he will see you and I out.

Is it not the case that all this about food taken from an animal suffering from local tuberculosis being dangerous to man is merely opinion?—No, it is not; it is a question of common sense. If an animal is diseased it is unfit for human food, and common-sense rebels against its being used as human food. We cannot have a deposit of tubercles, especially in the acute stage, without the whole blood of the animal being affected, however well it looks.

Have you ever seen the spores?—No.

Have you ever seen anybody who has seen them? (Laughter.)—No.

Witness was next referred to statements of Professor M'Fadyean, Edinburgh, in December last, with which he said he did not agree, although he admitted Professor M'Fadyean is an authority.

Re-examined by Mr. COMRIE THOMSON.—You tell us it is your duty to condemn the whole portions of the animal because there is great risk that, although the disease is not visible, the parts are really affected?—That is the latest result of scientific teaching and of the practical teaching in our *abattoirs*.

You still think there has not been sufficient experiment to entitle you to state this has been ascertained as an absolute scientific fact, but as a practical man you think in the interests of the public the benefit of the doubt should be given to the public?—Undoubtedly.

ARCHIBALD ROBINSON.

Examined by Mr. COMRIE THOMSON—I am a Fellow and Member of the Royal College of Veterinary Surgeons, and foreign corresponding member of the Central Society of Veterinary Medicine of Paris. One of the most famous veterinary schools is that of Lyons, where my professional studies were partly carried on. There is a well known professor there, Professor St Cyr. I had an opportunity of witnessing the experiments and observing the investigations that that gentleman carried on, and also the experiments of Chauveau. Since then I have devoted a great deal of study and investigation to tubercular bacilli, including microscopic investigation. As the result of this study and inquiry, I have formed the opinion that tuberculosis is communicable to man by the ingestion of the meat of a tuberculosed animal. All the facts point to that conclusion.

Is the disease one that affects the whole system?—Undoubtedly so. Before you get naked eye lesions it is my belief that the disease has pervaded the tissue of the animal.

Now, that being so, what is the conclusion at which you arrive as to the period preceding the development of the visible disease?—That depends somewhat upon the soil in which the tubercle is seen. The experiments of Corneille lead us to believe that from the 18th to the 24th day you can get tubercle developed by ingestion in the guinea pig.

It has been suggested to us that there is nothing to show from scientific investigations that the disease is communicable by ingestion, but that the disease is always communicated by inhalation. What do you say to that?—The majority of experiments go to show that the disease is easily communicable by ingestion, and the probability is that the communication of the disease by inhalation is of much less frequent occurrence, because the sputum requires to undergo dessication in order to enter the atmosphere. Experiments have proved that the disease has been conveyed from the cow to human beings by means of the milk. There are observations which go conclusively to show that such is the case. Fowls have also been found to be the means of communicating it.

Has the identity of these tubercles in animals with phthisis in man been established?—Thoroughly. I should explain that there are slight morphological differences in the form of the bacilli, but these are simply due to the difference of the soil in which they are developed. It is easily ascertained that such is the case. These conclusions are the result not merely of reading, but of observation of the experiments made at Lyons. When I was appointed inspector by the Local Authority of Greenock, I recommended the Local Authority to empower me to cause all animals suffering from tuberculosis, no matter how limited in extent, to be totally destroyed. I met with considerable opposition, but it died away. I succeeded in getting my views given practical effect to, and since 1874 it has been the practice in Greenock to destroy the carcase. The butchers there have for many years past practically acquiesced. I understand this policy of total destruction inaugurated in Greenock has also been enforced in Paisley. Looking back on all I have learned and observed, I am prepared to advise the Court that it is a hazardous thing for the health and life of the community to allow any part of a tuberculosed animal to pass into food. On 9th May I was shown, in Moore Street slaughter-house, the two carcases now in question, those of a cow and a bullock. I examined them carefully, and removed certain portions for microscopic examination. I prepared a report. (Identifies report.) In my opinion, these were not fit for human food. The bullock was in better condition than the cow. Apart from the view I have adopted, and taking the less strict view of removing what was apparently affected and passing the rest, I would not have passed either of these carcases nor any portion of them.

From what part of the body did you take the specimens for minute treatment?—From the diaphragm and the dorsum of the left lung. I also took some of the mesenteric glands from the alimentary track. This was of the bullock.

What did you find upon microscopic examination?—I found a quantity of giant or enlarged cells; proliferation or multiplication, repeated bisection and trisection of the lymphoid cells, suggesting irritation of the part. Giant cells suggest the presence of tubercle, histologically.

What else did you see?—I found a number of bacilli, tubercular bacilli.

Were you quite clear what they were?—Undoubtedly. There were no other bacilli of the same dimensions and character.

Witness had read the report of the Privy Council Committee, and agreed with the conclusions arrived at both with regard to the transmission of tuberculosis from animal to animal, from animal to man, and from expectorated matter to fowls, by which it was further transmitted to other animals. It was also stated in the report that it was obvious that the digestive fluids did not exert a destructive influence on the poison of the bacilli. He likewise agreed with that view.

Do you believe bacilli are taken in largely by inhalation?—Not that particular class of disease. The bacilli can so get in; but for one you get by inhalation you get fifty or sixty as the result of ingestion. Inhalation is the less usual way by which animals become affected with it. I may say it has been tried over and over again to cause tuberculosis in the lower animals by inhalation in the ordinary sense, and that they have failed every one of them.

It comes to this, that you don't agree with the Privy Council Commissioners when they say that the bacilli tuberculosis has been proved to enter the body by inhalation into the air passages and lungs?—I agree with it, but not prominently so. The disease is capable of inhalation under certain circumstances. It is less common than by ingestion.

In another part of the report it is stated that owing to the fact that the bacilli are most commonly found in the lungs, inhalation would appear to be the common way in which the disease is contracted?—I am aware of that, but I don't agree with it. The fact of bacilli being found in the lungs does not conclusively prove that the disease has been inhaled. In fact, experiments prove that it is not conclusive.

Further, it is stated that cohabitation of the diseased and healthy animals is a fertile source of spreading the matter?—I agree with that. Neither can the disease be spread by the breath only. I believe that the disease is spread in cohabitation by one animal coughing up sputum which lights on the food of another, and is swallowed by it. The gastric juice in man's stomach makes it hard work for bacilli to live there. Some it kills, but others it does not kill.

If the meat of an animal that has had tuberculosis about its lungs or the membranes is properly cooked, either by boiling or roasting, and is then subjected to the acids in the human stomach, do you think there is any danger of tuberculosis being communicated with that food?—It would have a very bad chance.

Have you ever known a case of ingestion in the human subject through the alimentary canal?—Dr. Bang, of Copenhagen, reports the case of a child of six months who died from that form of tuberculosis known as tabes mesenterica.

By the Court—Was there any evidence in that case to show how the child took the disease?—The child had been nourished with the milk of a cow whose udder was found to be tubercular.

By Mr. M'Kechnie—Is not the milk much more dangerous than the meat?—Yes, but I do not know how much more dangerous it is.

You know that people drink milk without boiling it, and if you take milk from a tubercular udder the milk is bound to be full of bacilli, and people swallow them?—I do not know. Nobody makes a practice of it. There are many cattle in the byre, and when the milk all comes to be mixed the bacilli are not nearly so prevalent as you imagine. We have no evidence that the bacillus tuberculosis develops in milk.

But it may be present in milk, and one good healthy fellow getting into your organs may do all the mischief?—But the bacillus has a tendency to sink, and the consequence is that there may not be so many of them ingested.

The case you have given is one which turns upon milk. My question is as to eating an animal cooked in the ordinary way. Have you ever heard of a human being who got the disease in that way?—It is not competent to make an experiment.

But is it not every time a man eats animal food an experiment?—The presumption is that he does take it in that way.

You think if you were allowed to experiment on a man's alimentary canal you could give it him?—Yes.

Referred to the statement of Koch in 1884, that there is "no danger except in eating tubercular lungs, glands, and so on, witness was asked—Do you agree with that?—No, certainly not.

You think Koch is wrong about that?—I think so.

Do you know what the practice in Paris is as to condemning animals which suffer from tuberculosis?—At the time of the congress the practice was partial condemnation, which was admitted by the chief inspector. The decree of the Government insisted upon total destruction, and I believe that is what is being done now.

By Mr. Jamieson—I am aware that in Glasgow hitherto the practice has been to reject the lungs, viscera, etc., in such animals as the two in question.

Why did you take portions of the parts which would be thrown away in any case instead of taking portions of the flesh which are in dispute in this case?—Simply because we expected to get definite results from the portions diseased. It would have taken a long time to get experiments and results from the juice of the beef. The mere fact of an examination of that kind being negative would not prove that the flesh was not injurious. Two carcases with very nearly similar appearances may give different results. The definite solution of the question which Arloing comes to is that 2·6 of the carcases of animals which have tuberculosis are capable of giving the infection of tuberculosis to other animals or people who partake.

As far as you know, there is not a single bacillus or spore in any of those sides of beef?—I am afraid there would be. But I know not positively of my own knowledge that there are.

Re-examined by Mr. Comrie Thomson—It is a very small part we can put under the microscope at once, so that to have examined the whole carcass exhaustively was practically impossible.

Did you find bacilli in the glands?—I got evidence of the commencement of the disease in one of the

glands of the mesentery, but I could not say I saw the bacilli.

Does that show that there was a great probability of the disease being communicated throughout the vascular system?—I should say so.

If you get evidence of the disease tuberculosis, does that satisfy you that the bacilli are there or thereabouts?—It does; but the presence of the bacillus is certainly the most important point.

Is it your opinion that the proof that this disease is communicable by ingestion is absolute?—It is my opinion.

ANDREW M'GEOCH.

V.S., Paisley, inspector for the Local Authority of the burgh under the Contagious Diseases (Animals) Act, also inspector of slaughter-houses under the Police Commissioners of the burgh, was examined by Mr. Comrie Thomson.

He said—On the 16th of this month I went to Yorkhill refrigerating chamber, and saw the two carcases in question. I examined the lungs and lymphatic glands of the cow. They exhibited tubercular deposit. I also examined the bullock in the chest and part of the diaphragm. There I found tubercular pleurisy. I found tubercular nodules in the walls of the chest of the bullock. I removed one of the prepectoral glands embodied in the fat for microscopic examination. It was about 13 inches from the part of the chest which manif sted tubercular lesions. I looked at the prepectoral gland. It was inflamed and congested. I was of opinion that the animal was suffering from tuberculosis. I assisted Professor Limont to prepare specimens from the gland for microscopic examination.

What did you see under the microscope?—I saw the bacilli stained red.

You knew the appearance of the tubercular bacillus?—It was the same as I had been shown before by Professor Williams, of Edinburgh.

What opinion did you form as to the condition of the carcase of that animal from the fact that you found bacillus in one of the prepectoral glands?—I formed the opinion that the whole of the carcase was unfit for human food. I was of opinion that generalisation of tuberculosis had begun. I am of opinion that it is impossible to say with certainty to what extent generalisation may have gone. On that ground I consider these carcases would be hazardous to human life.

In Paisley what is your custom in regard to tuberculous animals?—Condemning.

Do you condemn the whole animal although only affected locally?—Yes.

Is it your opinion that the flesh of both the cow and bullock in question were unfit for human food?—Yes.

By Mr. JAMESON—I have long been of opinion that the flesh of a tubercular animal is unfit for human food. With regard to the milk, I don't think there is so much danger if the mammary glands are not affected.

And milk, not being boiled, is much more dangerous if taken into the system than flesh which is boiled?—Yes.

That being so, does it not follow that if an animal is only locally affected with tuberculosis in the lungs or viscera, the flesh may be used with perfect safety just as the milk may be used with perfect safety unless the mammary glands are affected?—I say there is not the same danger.

If there is not the same danger with regard to milk which is not boiled there is still less danger with regard to flesh which has to be cooked and digested?—There is just the same danger.

Do you think that cooking affords no protection?—No; because the cooking may not be well done. If the cooking were done so as to coagulate all the albumen and remove the red colour it would give absolute immunity.

Therefore milk is much more likely to be a source of disease than the flesh?—Yes.

By Mr. THOMSON—As to the distinction you draw between the bad results of using the milk and the bad results of eating flesh. I understand you to say that if tuberculosis has only advanced a small way, and if there is nothing apparently wrong with the mammary glands, the milk may be taken?—Yes, but there is still a danger.

Dr. MAYLARD,

Glasgow, surgeon to the Sick Children's Hospital, etc., said, in answer to Mr. URE—I have devoted much attention to surgical pathology, and I studied bacteriology under Koch in Berlin. On the 9th May, I went to Moore Street slaughter-house and took away a portion of the lung of the cow which appeared to be diseased, and a part of the pleura of the ox. The lungs were cheesy-like, with patches having small collections of pus.

I submitted some of these masses for microscopic examination for the purpose of detecting the bacteria tuberculosis. On the first examination I made twelve preparations.

Did you discover bacilli in those?—Not in those. Feeling certain from the naked eye appearances that it was a case of tuberculosis I went to York-hill and took another portion of the lung, which I submitted to precisely the process for the detection of bacilli, and in every one of these I found bacilli. I attach importance to that as showing the uncertainty with which the tubercular bacilli may be found. While the disease may be obvious to the naked eye, yet one may not find bacilli present.

In your opinion were the carcases of the ox and the cow unfit for human food?—I do not feel capable to express an opinion on that point. The bacilli find their way all about in the carcases of the animal. They are not confined to the tubercles. They circulate in the animal through the blood. They get into the lymphatic glands, and they may be there without any visible indication of their presence. The virus of the disease may be circulating through apparently healthy organs and tissues, although it does not obviously manifest itself.

Do you think the disease may be communicated by eating tuberculous food?—I do.

By ingestion?—Yes.

Does it seem to you there is no physical impossibility in the communication of the disease by the alimentary canal?—None whatever. It is much more in children than in adults that we see tubercu-

lous disease. I have also had experience in Glasgow Infirmary. Tuberculosis is common there in all forms.

By Mr. JAMESON—You have told us that the bacilli may circulate through the whole system. In point of fact, are the bacilli not rarely found in the blood of animals?—They are rarely found.

Does that not point to this, that they are only in the blood, if they are there at all, temporarily until they find a *nidus* where they may fasten themselves and propagate?—Quite so.

Is it not. therefore, quite possible when bacilli get into the system of a man, say by inhalation, and passing to the lungs, which may be the place where there is any weakness, they wil! readily fasten there, and proceed to live and have their being?—Yes.

Is it not possible that tuberculosis may from the outset be practically localised in an organ like the lungs or the mesenteric glands?—It may be so.

That would leave the rest of the frame of the animal in a healthy condition?—Yes, if one could with certainty say that it was so.

Dr. JOSEPH COATES,

Being examined by Mr. THOMSON, deposed—I am pathologist to the Western Infirmary. I am examiner in pathology for the university, and the author of a manual of pathology. Witness went on to describe his examination on 9th May of the cow and bullock now in question, and to speak to the indications of tubercular disease which they presented. I found tubercular bacilli in the diseased portion of the pleura. They were quite unequivocal. The lesions are essentially the same in man as in bovine animals. The appearance that most readily determined tuberculosis was a structure consisting essentially of giant cells and smaller cells called epitheliod cells round them. They form the component part of the miliary tubercle. If there were miliary tubercle and giant cells I would consider that sufficient to satisfy me that tuberculosis was in existence. The search for bacillus is, of course, a much more laborious matter. It is difficult of detection unless present in considerable numbers. In both of these animals I had to search diligently but I found it unequivocally.

Do you consider that these carcases, either of them, were fit for human food?—I don't think they were.

Do you consider that the carcase of any animal in which tuberculosis exists, even to the extent to which it had gone in either of these animals, is fit for human food?—No.

It has been suggested to us that the ingestion of food containing tubercular matter is incapable of giving rise to tuberculosis?—My own experience in multitudes of cases shows that tuberculosis is communicated by what is taken into the mouth and into the alimentary canal.

Then of course it follows from that that it is unsafe to allow tuberculous meat to be used for human food?—Undoubtedly.

Do you think that risk would be obviated—is obviated—by merely removing those portions of the animal which are visibly affected by tuberculosis?—I don't think so.

By Mr. JAMESON—If the bacilli get into the circulation I don't think they are destroyed by the white corpuscles of the blood. But unless they are present in great numbers the chances are that they would be missed.

By Mr. M'KECHNIE—The bacillus dates from Koch in 1882, and is therefore only seven years old. Have you heard that the tuberculous bacillus has got a rival?—Not seriously.

PROFESSOR WILLIAM LIMONT

spoke to his examination of the bullock and cow on 9th May, and to their appearances. Neither of the carcases was fit for human food, because both suffered from acute tuberculosis. The bacillus may be carried in the blood stream through the various parts of the carcase. In my opinion, the disease is communicable to man by ingestion as well as by inhalation.

By Mr. M'KECHNIE—I am 34 years of age. I do not know that it was Professor M'Call's practice at one time to condemn the whole of the carcases of cattle affected with pleuro-pneumonia, nor do I know what his practice is now. I have said that in my opinion this disease can be communicated by ingestion from animals to man. I know that man resembles other animals in many respects, and I have observed that animals are certainly infected by ingestion.

THOMAS WALLEY,

Principal of the Edinburgh Veterinary College, had for many years taken special interest in tuberculosis in animals. I examined the two carcases on the 9th May. The cow was quite unfit for food. I am of opinion the carcase of the bullock was dangerous. Both carcases ought most certainly to have been destroyed. I should have condemned the cow quite independently of tuberculosis from the general condition of the carcase.

Examination resumed—I think the propositions adopted at the Paris Congress are those that everybody who knows anything of the disease and the results must concur with. Certainly I concur with them. I endorse also the report of the Departmental Committee which sat last summer in London. I consider the decree of the French Government was sensible legislation.

By the COURT—Under this decree the bullock would have been condemned in the condition in which he was.

Examination resumed—I am aware that the Government of Victoria recently appointed a board to investigate the diseases of cattle, and this board has recommended that tuberculosis should be dealt with as we deal with pleuro-pneumonia under the Contagious Diseases (Animals) Act. Of course that involves compensation.

By Mr. M'KECHNIE—I am consulted by the officers of the Edinburgh Corporation.

Is it the case that in Edinburgh they condemn carcases for tuberculosis and that the Corporation give compensation?—Certainly not; unless I seize them for pleuro-pneumonia,

Mr. M'KECHNIE—Cooking if properly carried out must to a large extent render all deleterious matter harmless?—If properly carried out.

The cooking in the human stomach?—It might not do so. Cooking at 212 degrees of temperature might.

Dr. JAMES WALLACE, Greenock,

Examined by Mr. COMRIE THOMSON.—I am a medical officer of health for the burgh of Greenock, and have been for about 14 years. On Friday, the 17th inst., I examined the carcases of the bullock and cow in question. In the lung of the cow I found abundance of tubercular matter in a state of softening. In the lung of the bullock I found a small tubercular mass about the size of a small horse bean, and on cutting into it I found it was in a state of caseation—a cheesy condition. It was a tubercular nodule. I found another nodule about the same size surrounding a vein. The animal had been suffering from tuberculosis. That disease is due to the presence of a microbe called a bacillus.

Tubercle may form in almost any part of the body. The disease, in my opinion, is communicable from animals to man, and that even although to the naked eye the tubercle may be found to exist only to a limited extent, or even in a single organ. Therefore it is my opinion that when an animal is, even to a limited extent, affected with tuberculosis, the whole animal is unfit for food, and should be condemned.

For five years I have acted in Greenock in accordance with the views I have expressed, and the officers of the Local Authority, acting under my instructions, have been in the habit of seizing and destroying all carcases in any way affected with tuberculosis, even although the visible affection is localised.

By Mr. JAMESON.—The way in which bacilli act is—They give rise to irritation in the tissue, and organic matter is in consequence effused, which forms the tubercle. Before even Koch's discovery tubercle consumption was believed to be due to some poison circulating in the system, but what its precise nature was scientific men were not clearly informed of.

Have you any proof that the bacillus is antecedently present in the body before consumption develops instead of coming after the hereditary taint has developed consumption?—That is the general belief of the profession at the present day.

But you cannot say it has ever been proved?—Not satisfactorily.

You are not prepared to say what heat would be sufficient to kill a bacillus tuberculosis?—Boiling heat—212 degrees. The general opinion is that 212 degrees heat is sufficient if sufficiently prolonged.

Would not a second of it do?—I am not postive as to that.

I have had frequent consultations in Greenock with Mr. Robinson. It was not he who first suggested to me the propriety of destroying affected animals. From my own reading I considered it was my duty to protect the public. I have had considerable experience as a medical man, but I have never come across a case of tuberculosis in a human subject owing to the use of the flesh of an animal that had suffered from it. I have not come across a case that could be proved to be produced in that way. If meat is thoroughly cooked at 212 degrees the heat will kill bacilli. A higher temperature would be required to kill the spores.

This is the same bacillus as causes glandular swelling in scrofulous children?—Yes. Such children sometimes recover from these glandular swellings.

How do you explain that?—I explain it in this way, that the cells of the particular structure in which the bacillus gets introduced are put in such a condition by proper hygienic treatment as to kill the bacillus.

I suppose cattle can be cured in the same way?—The progress of the disease in cattle is much more rapid than in the human being. I have never found bacilli or their spores; but I have seen them on microscopic slides. What I am giving you is the result of my professional reading.

Re-examined by Mr. COMRIE THOMSON.—Is it practically possible to prove to demonstration that a man's death has been caused by eating tuberculosed meat?—No; no we can't make experiments on human beings.

So it is incapable of proof?—Yes; I think that there is the highest scientific authority that the conclusion at which I have arrived as to the destruction of tuberculous animals is sound. Although when bacilli enter the system they undergo a change, it is only a morphological one—change of form—and does not affect their noxious qualities. Until they find a suitable soil they are quite innocuous.

Professor JOHN M'FADYEAN,

Member of the Royal College of Veterinary Surgeons, and lecturer at the Royal Veterinary College in Edinburgh, examined by Mr. URE.—I have paid special attention to the pathology of tuberculosis for some years, and I was examined as a witness before the Departmental Committee last summer. Tuberculosis is a specific disease, determined by the presence of an organism in the animal body called the bacillus tuberculosis. I have conducted investigations with the view of demonstrating the presence of germs in milk.

And what was the result of your investigations?—We found in the dairies we examined a certain number of animals suffering from tuberculosis of the mammary gland. We were able to demonstrate the presence of the bacilli in the milk, and that was the whole object of our investigations. I consider the consumption of all such milk would be very decidedly dangerous. The consumption of meat of tuberculous cattle would be decidedly as dangerous if consumed raw. Although tuberculosis may be and always is local to commence with, the tendency is that there is a danger at anyrate of its becoming general if the bacilli burst into the blood stream, and we can never declare with absolute certainty that in any particular carcase this has not occurred; because if the bacilli have gained access to the blood stream, it takes sometimes a week or ten days probably to determine the formation of the tubercles.

In what sort of cases does the bacillus find the best opportunities for its ravages?—In all cases where the constitution of man or the animal is weakened through any cause that is favourable to the development of tuberculosis. I think we are compelled to believe that the disease is communi-

cable from animals to man as the result of experiments on animals. I examined specimens of the ox in question, and did not find any bacilli, but the lesions were tubercular. 212 degrees of heat, if sustained for a short time on two or three successive days, would kill the bacilli. The common methods of cooking are not to be relied upon for sterilising meat—that is to say, to kill organisms. It is an ascertained scientific fact, speaking generally, that spores require a higher degree of temperature to kill them than the bacilli. In the case of the animal from which the specimen in this case was taken, I think most decidedly it ought not to have been allowed to pass as an article fit for human food.

I am well acquainted with the fact that the process known as stripping is frequently practised. It is a simple tearing off of the pleura or lining membrane of the chest cavity.

Have you any opinion with regard to the efficiency of that process for removing the evidence of tuberculosis?—I think it is quite efficient in some cases to remove the naked-eye evidences of the tubercular process. I don't think it is to be relied upon to take away all the tubercular growth or the bacilli, because a tubercular process starting on the pleural membrane tends to extend in depth as well as in extent along the surface.

May you search even with the microscope in vain for the presence of the bacilli?—You may make a very prolonged search, and examine a great many specimens, and fail to find them, although other methods of experimentation may prove that they are there.

Cross-examined by Mr. JAMESON.—The modern view with regard to the heredity of consumption is that consumption is very seldom inherited—there is a tendency to consumption inherited.

Is not that view in the first place a change upon the view which was universally held before?—I am not aware what the view universally held was. My experience only extends over about 12 to 14 years, but I am aware that in that time very careful search has been made to discover tubercular newly-born animals and children, and my belief is that one child tubercular at birth has not been found, and that inherited tuberculosis in the lower animals has only been found twice, the second case having been found about a month ago. There may be inherited a weakness of body which belongs to probably almost every animal cell in the body which makes it fall an easy prey to the tubercular bacillus when it gains entrance to the body.

Is it not as likely that cells have degenerated before the bacillus tuberculosis takes up its abode in them as that the bacillus produces the first degeneration of the cells?—I think there is no evidence of that.

Is there any evidence the other way?—Yes, very good evidence the other way.

What sort of evidence?—Experimental, with a considerable number of organisms. When they are introduced into the body we can follow their progress in the tissue, and we can see them actually inside the animal cells.

Is it not possible when you innoculate an animal directly with tuberculous matter you don't merely introduce a bacillus, but also some depraved animal matter, which may affect the cells of the animal?—That is one of the original objections which held good until the system of growing pure cultures was introduced, which obviates that. Such depraved matters are unknown pathologically so far as I am concerned. The great danger of milk is that it is usually taken raw, and frequently the bacilli are in it in great numbers. I think that in France and Germany the practice is to condemn where the disease is found affecting the walls of the body cavity.

But not merely the lungs, for instance?—According to the French decree, if it is found in the lung, and not very advanced, and nowhere else, the carcase may be passed. I believe the regulations in Germany are practically the same as in France.

You view the matter as one that has not been thoroughly expiscated?—I think it is not thoroughly investigated. The spores of bacilli are not found everywhere. Experiment disproves the assumption that they are generally going through the air. They are, however, found in all great centres of population more or less; in the rooms of consumptive patients, and hospitals, and so on. I agree with the Commissioners when they state that inhalation is the commonest way of the bacilli of tuberculosis entering the human subject.

And, therefore, I suppose, you agree that very little of the tuberculosis in this country has been caused by eating diseased meat?—No, I think it is not a great proportion. So far as I know, there is no absolutely conclusive evidence to show.

You can't even say that one case in ten thousand is caused in this way?—I think one would not be justified in making any estimate. I should decline to attempt to state it approximately.

The danger of tubercular disease from eating tubercular meat has thus been very much overrated?—By some.

By Mr. M'KECHNIE.—Is this the first case in which you found no microbes on examining a tuberculous animal?—No, no. They may be there, and you may not be able to demonstrate them by the microscope. Although bacilli are the only conclusive proof of the presence of tuberculosis necessary to convince a sceptic who knows nothing about the structure of tubercular lesion, it is not necessary to convince me. I do not attach any importance to the presence of bacillus as an evidence of the presence of disease. It is the easiest evidence when you can produce it. Undoubtedly it is not the only evidence, because you can produce tuberculosis by inoculation from the flesh of an animal in which the microscope does not show bacilli. I should have no hesitation in pronouncing any animal unfit for food that was in the condition of the one I saw.

PRINCIPAL M'CALL,

Glasgow, was next examined. He stated that he had been a teacher of veterinary science during the last thirty years. He had been examined before the Privy Council Committee, and he adhered to the evidence he then gave. He agreed with almost the whole of the report prepared by that

Committee. Tubercular disease could be transmitted to man from the lower animals. It could be communicated either by inhalation, swallowing, direct introduction, and it was also supposed to be directly transmitted by heredity. Inhalation was a common way in which the disease was contracted, but it might be transmitted more directly from ingestion of diseased meat. That, however, could not be proved by actual experiment, because in doing so the patient would be killed. He was of opinion that the use of tuberculous flesh for human food should be prohibited.

Both animals in this case were suffering from tubercular pleuritis. The appearance on the bullock could certainly not be accounted for by overdriving. The lungs of the cow were studded here and there with caseous or cheesy tubercles. The apices were fringed with tubercular deposits. In the bullock there were nodules on the costal pleura and the diaphragm. There were some small caseating tubercles in both lungs. The case of the bullock was undoubtedly more acute than that of the cow. It is absolutely established in my belief that tuberculosis is produced by a microbe, and it is the prevailing belief among scientific men. I consider that carcases should be destroyed if affected, however slightly.

There is no way you can deal with these carcases but pass the whole or condemn the whole.

Cross-examined by Mr. M'Kechnie.—I have known this disease of tuberculosis for thirty years. As inspector under the Local Authority I have no power to deal with an animal affected with tuberculosis. I could not prevent it from being sold.

Witness was examined at length as to whether he could give a case in which sound flesh had caused tuberculosis in a sound animal, but could not mention a case such as that indicated by counsel. He had never experimented with the view of finding bacilli in the blood. He had never seen a bacillus of tuberculosis in the blood of any animal. He had said the bacillus was carried by the blood or by the lymph stream. He never examined microscopically for it in the lymph stream. He had never seen the bacillus travelling about the body, but he thought that it could be proved that it did travel. There were only two ways by which it could travel, and they were the blood and the lymph stream.

A great deal of American dead meat came into Glasgow, but he had nothing to do with it. His duties lay with the living animal. If the meat were taken to the market it would be seen by the dead meat inspectors there. He had never heard, however, of any side of American meat being condemned. Bacilli might be in them. Dead meat also came from the country. He believed it was inspected. Large quantities of dead meat were condemned in the market, but he could not say for what disease. He had nothing whatever to do with tuberculosis, because it was not a scheduled disease. In every case of disease where he had power he condemned the carcases. Quantities of fowls came to Glasgow. They were often afflicted with tuberculosis; but there were no means provided in Glasgow of condemning such fowls, so that, apparently, while people might not eat the flesh of a tuberculous bullock they might eat tuberculous fowls.

This closed the case for the prosecution.

GOVERNMENT VETY. DEPARTMENT.

CONTAGIOUS DISEASES IN ANIMALS.

Reported in Great Britain and Ireland during the week ended June 8th, 1889.

Pleuro-pneumonia.—There were 10 fresh outbreaks of this disease in Great Britain reported on during the week, 6 of these were in England, in the counties of Essex, Lancaster, London, Middlesex, and York (W.R.). The 4 outbreaks in Scotland all occurred in the county of Fife. The number of cattle attacked was 18, of which 12 were in England and 6 in Scotland, and the number of healthy cattle slaughtered because they had been exposed to infection was 115, of which 37 were in England and the remainder in Scotland. In Ireland 4 fresh outbreaks were reported, 2 in North Dublin, 1 in Rathdown, Co. Dublin, and 1 in Ardee, Co. Louth; 6 animals were attacked and 12 healthy cattle in contact were slaughtered.

Anthrax.—Only 1 fresh outbreak of this disease was reported during the week in the whole of the United Kingdom, this was in Staffordshire, where 1 animal was attacked and died.

Swine-Fever.—In Great Britain 130 fresh outbreaks were reported on, 602 swine were attacked, 304 diseased pigs were killed, 233 died, 69 recovered, and 368 remained alive at the end of the week. In Ireland 9 fresh outbreaks of swine-fever were reported, and 21 pigs were attacked.

Glanders and Farcy.—In England 7 fresh outbreaks of glanders were reported, all of them in London; 16 horses were affected, 14 in London and 2 in Lanarkshire. There were 11 fresh outbreaks of farcy reported in England, 9 in London 1 in Essex, and 1 in Surrey, and 23 horses were attacked. In Ireland 1 fresh outbreak of glanders occurred in Londonderry, only 1 animal was attacked.

Rabies.—In England 9 cases of this disease were reported, 8 of them in dogs, in the counties of Kent, Lancaster, London, Sussex (East), and York (W.R.), in Essex 1 case was reported in a sheep which was said to have been bitten by a rabid dog about the beginning of March. In Ireland 14 cases of rabies occurred, 8 of them in dogs in the counties of Down, Tyrone, Cork, Kerry, Dublin, Kildare, Kings County and Galway. The other animals affected were 3 cattle, 2 pigs, and 1 donkey.

NOTES AND NEWS.

Scottish Metropolitan Veterinary Medical Society.

The next Meeting of the Association will be held in the London Hotel, St. Andrew Square, Edinburgh, on Wednesday, 26th June, at 2.30 p.m. The President, C. Cunningham Esq., in the chair.

Business:—

1. Election to Membership of Mr. T. Connochie, M.R.C.V.S., Galashiels; Mr. T. Kay, M.R.C.V.S., Lochee; Mr. Love, M.R.C.V.S., Leith.

2. Consideration of Prof. W. O. Williams' proposal to memorialize the Government concerning the sale and consumption of the flesh and milk of tuberculosed animals.

3. Discussion of Mr. H. Thompson's paper on "Difficult Parturition."

4.—Mr. Pottie, Paisley, will exhibit his apparatus for reducing inguinal hernia in young animals; and will describe its application, with cases illustrative of the results.

5. Mr. Hutton, Kelso, will read a paper on "The Use and Abuse of Cake, as a Feeding Stuff for Cattle and Sheep."

R. Rutherford, *Hon. Sec.*

A Mysterious Illness in Glasgow.

What is described as an unknown illness has affected a large number of people in Glasgow during the past week. The symptoms were spasms in the stomach and vomitings, with pains in the back, throat, and head, with violent diarrhœa, and the attacks lasted from two to six days. In the Royal Infirmary twenty-five people—nurses, cleaners, and resident physicians and surgeons—were affected. Although the cause of the outbreak is unknown, it has been attributed to the change of diet made by many owing to the advent of summer weather.—*Pall Mall Gazette*

Leprosy in Meat Salesmen.

At a meeting of the City Commission of Sewers yesterday, Mr. George Rose-Innes drew the attention of the Commission, as the sanitary authority of the City, to the statement of the Prince of Wales at Marlborough House on Monday that "there is, at this very moment, a leper, with his hands distinctly affected by the disease, engaged in his business in one of the large London meat markets." He moved that the matter should be at once referred to the Sanitary Committee to consider and act therein as they might think proper, with the assistance of the medical officer and the City Solicitor. Dr. Sedgwick Saunders, the medical officer of health, said the Prince of Wales no doubt spoke not from his own knowledge, but from information furnished him by others. So far as his (Dr. Saunders) knowledge went—speaking of the central markets—he was aware of no case of leprosy there. There were cases of eczema and other skin diseases, brought about probably by handling diseased meat, and he had seriously remonstrated with the employers for having the men in their service. Some of the peculiar appearances of the skin might lead people to suppose that they were cases of leprosy. He would, however, most carefully and seriously investigate the matter.

Dr. Thorne Thorne, President of the Epidemiological Society and Assistant Medical Officer and Medical Inspector for General Sanitary Purposes of the Local Government Board, writing to Mr. Frank Harris, one of the hon. secs. of the Father Damien Memorial Fund Committee, said: "A man suffering from leprosy was exhibited at the last meeting of the Epidemiological Society by Dr. Abraham, who explained that he was a salesman in a London meat market. I spoke to the man myself, and asked if he was so employed. He answered that he was, but added, 'I never touch the meat.' "This leper had lost several fingers by the action of the disease, and his feet also were maimed."

Dr. Abraham's description* is as follows: "E. Y., aged sixty-four, a meat salesman, born in London, parents never out of England. He was formerly a sailor, and as a young man has been on voyages in the Mediterranean and in the Baltic: but this was upwards of forty years ago. Since then he has not been once out of England, and is not aware of ever having seen any one with a disease like his. Until six years ago he always enjoyed the best possible health. He exhibits anæsthetic patches on his body, complete anæthesia of the legs below the knees and of the forearms and hands, with muscular and osseous atrophy and superficial ulcerations. The conjunctiva in one eye is becoming the seat of deposit and ulceration. I cannot admit that we have here a case of *de novo* development of the disease, but the interval of time between his presence in leprous countries and the manifestation of the symptoms certainly is extraordinarily long. No such 'period of incubation' has ever been recorded. The bacillus must have been asleep for nearly forty years, the germ dormant, like the 'mummy' wheat!" This leper was under the care of Dr. Larder at the Whitechapel Infirmary.

Another leper from the Whitechapel Infirmary whose photograph is given in this lecture was a boy of seventeen, born in Barbadoes, of English parentage. "When eight years old," said Dr. Abraham, "he was brought to England, and the disease did not commence until he was between eleven and twelve. His father, a clerk, died in Barbadoes of 'fever and ague,' his mother and two brothers are living and quite healthy, and no other members of the family are affected. He does not remember being in contact with or seeing anything of the kind. He believes he was vaccinated after he came to England, 'but it did not take.' The poor boy is quite blind, and he shows the discoloration and diffuse thickening of the skin over the face which are generally so well marked in this kind of leprosy. His hands and feet are also affected. The lad's lips are so cicatrised that he can no longer put out his tongue." Dr. Abraham says he has seen two other cases of leprosy in London in the last two years.—*Daily News.*

* "Leprosy, a Review of some Facts and Figures." Published by the Illustrated Medical News Company (Limited), and is the printed reproduction of Dr. Abraham's lecture to the Epidemiological Society on the 8th of May.